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STATE OF MONTANA
DIVISION OF FORENSIC SCIENCE
DEPARTMENT OF JUSTICE
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MARCH 1982

PHARMACEUTICALS

Many confiscated medicines are sent in with the autopsy and non-autopsy kits. Since these are piling up at an alarming rate we are taking steps to dispose of them. Hereafter they will be destroyed thirty days after the final report is mailed. Should your office want them back, please note this on the form or contact Jeanne Williams at the Division's office.

EYE FLUID (VITREOUS HUMOR)

Included with this newletter is the procedure for removing a very important toxicology sample. We are requesting that it be taken in every autopsy and non-autopsy death case. A few good reasons:

1) To substantiate a blood alcohol level in motor vehicle deaths where an autopsy is not performed.

   In the presence of chest and abdominal injuries the blood removed from the cavity may be contaminated with gastric alcohol contents.

2) To determine an alcohol level if the body has been embalmed or no blood is available.

   Embalming fluid does not infiltrate the eyeball as well as it does other tissues so an alcohol level may be determined.

3) To substantiate an approximate time of death.

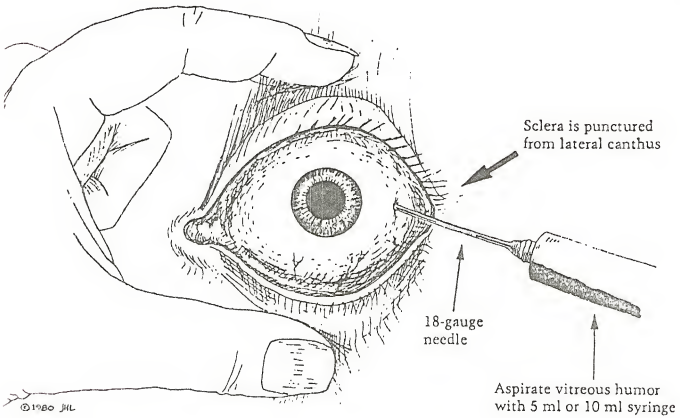
   Under certain strict conditions the potassium levels in the eyefluid rise at a steady rate. The result may be useful in corroborating an estimated time of death.

4) To test for the presence of substances useful in determining a natural death.

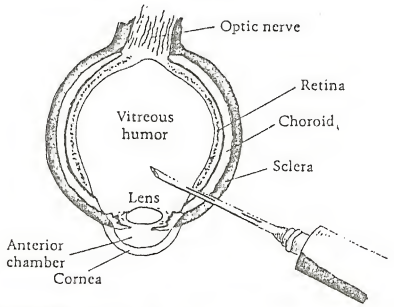
   After death the blood becomes useless for determining sugar content, sodium, chlorides and other chemicals that may indicate diabetes or dehydration.

TECHNIQUE FOR POSTMORTEM ASPIRATION OF VITREOUS HUMOR

An optimal aspiration will recover 2.5 ml of vitreous humor



Cross-sectional view of procedure



MARCH 1982
CUTTING & STAB WOUNDS
R. L. Rivers, M.D.

A 71-year-old vituperative veteran was admitted to the hospital for chronic obstructive pulmonary disease and organic brain syndrome. Every day his obscene screams offended every patient, nurse and doctor on the floor. He had kicked an intern in the chest and threatened to kick a student nurse in the groin. He was particularly abusive to a nephew who had visited him the day after admission.

On the fourth hospital day the nephew "found" his uncle with multiple stab wounds to the chest. Nearby was a small blood-stained pen knife with a broken 2-inch blade. It was 1/16" thick and 1/2" wide. Although the knife belonged to the nephew, he allegedly had left the knife during his last visit so his uncle could "cut some fruit".

The patient died 20 hours later. He was never able to answer questions by the police or hospital authorities. The physician did not feel that the injuries caused his death as "he was agonal in any case".

THE AUTOPSY

At autopsy there were 70 deep and superficial stab wounds grouped in a 5-1/2 X 5-1/8 inch area over the left aspect of the thorax. Most were wedge shaped and orientated in a transverse or oblique direction. The largest wound of this group was 7/8 X 1/16 inches. (The wound edges were approximated before measuring.) One wound had perforated the second intercostal space for 3 inches, penetrating the left upper lobe of the lung.

There were 100 ml of clotted and fluid blood within the left pleural cavity and dark red hemorrhage over the posterior aspect of the sternum. There were not other injuries on the body or extremities.

QUESTIONS:

1) Are all the wounds consistent with the knife found at the scene?

2) Are there any other procedures that should be performed?

3) Who stabbed the veteran?

MARCH 1982

ON CALL SCHEDULE - MONTANA STATE MEDICAL EXAMINER

275 W. Front Street
Missoula, Montana 59802

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6 RON RIVERS
7 RON RIVERS	8	9	10	11	12	13 JOHN PFAFF
14 JOHN PFAFF	15	16	17	18	19	20 KEN MUELLER
21 KEN MUELLER	22	23	24	25	26	27 JOHN PFAFF
28 JOHN PFAFF	29	30	31			

Telephone Numbers: State Office - 728-4970
WATS Line - 243-5796

Home Phone: Dr. Ron Rivers- 728-2033 (Home)
(week nights call unless otherwise indicated)

Dr. John Pfaff - Great Falls
Hospital - 727-3333
Home - 727-3905

Dr. Ken Mueller- Billings
Hospital - 657-7000
Home - 248-3024

1. Yes. There is often a disparity between the dimensions of wounds and the knife that created them. While many are longer than the small knife, they were caused by withdrawing the knife at a different angle. This "rocking" motion will enlarge wounds to many times their original size. Connecting of compound stab wounds can give the appearance of one large wound.

   The width of the wounds varies with Langer's lines of cleavage. A wound that parallels the elastic fibers of the skin is narrow. An identical wound that crosses the lines of cleavage will gape. Both may be caused by a knife of the same thickness. The gaping wound must be pushed together for an accurate measurement.

   The depth of the stab wounds varies according to the:

   a) Depth of penetration by the object - thus a 1-inch deep wound can be produced by the longest knife conceivable.

   b) Indentation or compression of the overlying surface - a 2- or 3-inch deep wound can be caused by a 1-inch blade thrust into a soft anterior abdominal wall or a pliable thorax.

   c) Position of underlying organs - the heart and lungs are closer to the anterior thorax in vivo than they are when seen at autopsy.

   d) The depth of the wound must be measured under direct visualization. A probe can dissect along facial planes and into a cavity deeper than the length of the weapon.

   A wedge-shaped stab wound indicates a single sharp-edged knife rather than a double-edged blade. Some knives have a false edge near the point; then a shallow wound will not have a blunt extremity.

2. Besides the usual identification photo the following photographs are suggested:

   a) An overall view of the wounds before cleansing, including an anatomical landmark.

   b) A closeup view of individual wounds before cleansing.

   c) A clean overall view with a ruler.

   d) A clean closeup view of individual wounds with a ruler.

   X-rays should be taken of all stab wounds when the weapon is unknown or broken. A broken point may then be found and matched with the assailant's knife blade.

3. Several factors suggest a suicide rather than a homicide. An elderly man with a health problem is in a high-risk category for suicide.

   The lack of defense wounds or reports of any outbursts from this physically and verbally active man rules against homicide. The presence of the knife at the scene also rules against a homicide.

   Most self-inflicted sharp wounds are incised wounds over the wrists or other areas with accessible vasculature. Self-inflicted stab wounds, however, are usually multiple, superficial, clustered, and over the precordium. Homicidal stab wounds are usually random and deep.

   The transverse and oblique orientation of the wounds is consistent with the pen knife held flat in the palm of the veteran's right hand.